

CLAIMS:

1. A method of cleaning or purifying a polymer which is intended for medical or pharmaceutical use, which method
5 comprises contacting the polymer with an extracting solvent comprising or consisting of an aliphatic alcohol, whereby impurities contained in the polymer are substantially extracted.
- 10 2. A method as claimed in claim 1, wherein the aliphatic alcohol is ethanol.
3. A method as claimed in claim 1, wherein the polymer is an elastomer.
- 15 4. A method as claimed in claim 3, wherein the elastomer is formed into an elastomeric article before being contacted with the extracting solvent.
- 20 5. A method as claimed in claim 4, wherein the elastomeric article is or comprises a seal for a pharmaceutical dispensing device.
- 25 6. A method as claimed in claim 3, wherein the elastomer is or comprises an isobutylene polymer or co-polymer thereof, preferably selected from one or more of polyisobutylene, polybutene, butyl rubber, halogenated butyl rubber, including derivatives thereof.
- 30 7. A method as claimed in claim 6, wherein the elastomer is or comprises one or more of butyl rubber, bromobutyl rubber and/or chlorobutyl rubber.

8. A method as claimed in claim 6, wherein the elastomer is or comprises a blend of an isobutylene polymer or co-polymer thereof with another polymer, preferably a
5 chlorine-substituted diene polymer.

9. A method as claimed in claim 8, wherein the elastomer is or comprises a blend of butyl or bromobutyl rubber and polychloroprene.

10. A method as claimed in claim 1, wherein the polymer is formed into a polymeric article after being contacted with the extracting solvent.

11. A method as claimed in claim 10, wherein the polymeric article is a pharmaceutical dispensing device or a component part thereof.

12. A method as claimed in claim 11, wherein the polymeric article is selected from one or more of a body, a chamber, a stem, a core, a core extension and a valve part of a pharmaceutical dispensing device.

13. A method as claimed in claim 1, wherein the polymer is or comprises one or more of polyethylene, polypropylene, polystyrene, polyvinylchloride, polycarbonate, nylon, polyacetal and polyester, including derivatives thereof.

14. A seal for a valve for use in a pharmaceutical dispensing device, which seal is formed from an elastomeric composition comprising an isobutylene polymer or co-polymer

thereof, optionally a cross-linking agent for the isobutylene polymer or co-polymer thereof, and optionally an accelerator for the cross-linking agent, wherein the seal and/or elastomeric composition has/have been contacted with
5 an extracting solvent comprising or consisting of an aliphatic alcohol, whereby impurities contained in the seal and/or elastomeric composition are substantially extracted.

15 15. A seal as claimed in claim 14, wherein the elastomeric composition comprises one or more of polyisobutylene, polybutene, butyl rubber, halogenated butyl rubber, including derivatives thereof.

15 16. A seal as claimed in claim 14, wherein the seal further includes a mineral filler.

20 17. A seal as claimed in claim 16, wherein the mineral filler is selected from one or more of magnesium silicate, aluminium silicate, silica, titanium oxide, zinc oxide, calcium carbonate, magnesium oxide magnesium carbonate, magnesium aluminium silicate, aluminium hydroxide, talc, kaolin, clay and amino silane coated clay.

25 18. A seal as claimed in claim 14, wherein the seal further includes a process aid, preferably a low molecular weight polyethylene.

30 19. A seal as claimed in claim 14, wherein the seal further comprising one or more of a reinforcement agent, a plasticizer, a binder, a stabilizer, a retarder, a bonding agents, an antioxidant, a lubricant, a pigment, a wax, a

resin, an antiozonants, a secondary accelerator or an activator.

20. A valve for use in a pharmaceutical dispensing
5 device having a seal as defined in claim 14.

21. A pharmaceutical dispensing device having a valve as claimed in claim 20.

10 22. A pharmaceutical dispensing device as claimed in claim 21 which is a pharmaceutical metered dose aerosol inhaler device.

23. A dispensing apparatus for dispensing pressurised
15 fluid comprising a valve body defining a chamber, a valve member extending movably through the chamber and through at least one annular seal co-operating with the valve member and the body to regulate the discharge of fluid, wherein the or at least one of the seals is as defined in claim 14.

20 24. A dispensing apparatus which comprises a pressurised dispensing container having a valve body provided with two annular valve seals through which a valve member is axially slidable, said seals being disposed at
25 inlet and outlet apertures of a valve chamber so that the valve functions as a metering valve, wherein at least one of the annular valve seals is as defined in claim 14.

25 25. A dispensing apparatus as claimed in claim 23, comprising a pressurised dispensing container operatively
30 connected to the valve body and containing the fluid to be

dispensed and a hydrofluorocarbon propellant comprising propellant type 134a or 227.

26. A dispensing apparatus as claimed in claim 24,
5 comprising a pressurised dispensing container operatively connected to the valve body and containing the fluid to be dispensed and a hydrofluorocarbon propellant comprising propellant type 134a or 227.

10 27. A dispensing apparatus as claimed in claim 26, wherein the fluid to be dispensed comprises a liquid or particulate product as a solution or suspension in a carrier liquid comprising alcohol.

15 28. A dispensing apparatus as claimed in claim 27, wherein the alcohol comprises ethanol.

29. An article selected from a body, a chamber, a stem, a core, a core extension and a valve part of a
20 pharmaceutical dispensing device, said article being formed from a polymer selected from one or more of polyethylene, polypropylene, polystyrene, polyvinylchloride, polycarbonate, nylon, polyacetal and polyester, including derivatives thereof, wherein the article and/or polymer
25 has/have been contacted with an extracting solvent comprising or consisting of an aliphatic alcohol, whereby impurities contained in the article and/or polymer are substantially extracted.

30 30. A process for the preparation of an elastomeric seal for a valve for use in a pharmaceutical dispensing device, the process comprising:

(i) providing an elastomeric composition comprising or consisting of an isobutylene polymer or co-polymer thereof;

(ii) forming the elastomeric composition into a seal;
and

5 (iii) contacting the seal with an extracting solvent comprising or consisting of an aliphatic alcohol, whereby impurities contained in the seal are substantially extracted.

10 31. A process for the preparation of an elastomeric seal for a valve for used in a pharmaceutical dispensing device, the process comprising:

(i) providing a composition comprising a mixture of an isobutylene polymer or co-polymer thereof, a cross-linking
15 agent for the isobutylene polymer or co-polymer thereof, and an optional accelerator for the cross-linking agent;

(ii) initiating a cross-linking reaction in the mixture to form a cross-linked elastomeric composition;

(iii) forming the elastomeric composition into a seal;
20 and

(iv) contacting the seal with an extracting solvent comprising or consisting of an aliphatic alcohol, whereby impurities contained in the seal are substantially extracted

25 32. A process as claimed in claim 30, wherein the aliphatic alcohol is ethanol.

33. A process as claimed in claim 30, wherein the composition is or comprises an isobutylene polymer or co-
30 polymer thereof, preferably selected from one or more of polyisobutylene, polybutene, butyl rubber, halogenated butyl rubber, including derivatives thereof.

34. A process as claimed in claim 30, wherein the step
of forming the composition into a seal involves one or more
forming techniques selected from compression moulding,
5 injection moulding and extrusion.

35. A process for the preparation of an article
selected from a body, a chamber, a stem, a core, a core
extension and a valve part of a pharmaceutical dispensing
10 device, the process comprising:

(i) providing a polymer composition selected from one
or more of polyethylene, polypropylene, polystyrene,
polyvinylchloride, polycarbonate, nylon, polyacetal and
polyester, including derivatives thereof

15 (ii) forming the composition into said article; and

(iii) contacting said article with an extracting solvent
comprising or consisting of an aliphatic alcohol, whereby
impurities contained in the composition are substantially
extracted.

20

25

30